



UNITED STATES PATENT AND TRADEMARK OFFICE

Wm

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/689,273	10/20/2003	Thomas McCabe	BW-DKT03086	2920

32175 7590 12/13/2004

BORGWARNER INC.
POWERTRAIN TECHNICAL CENTER
3800 AUTOMATION AVENUE, SUITE 100
AUBURN HILLS, MI 48326-1782

EXAMINER

MCCALL, ERIC SCOTT

ART UNIT	PAPER NUMBER
----------	--------------

2855

DATE MAILED: 12/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/689,273

Applicant(s)

MCCABE, THOMAS

Examiner

Eric S. McCall

Art Unit

2855

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 October 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 10/20/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

PHASE AVERAGING AT HIGH ROTATIONAL SPEEDS

FIRST OFFICE ACTION

TITLE

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the "claims" are directed.

SPECIFICATION

The specification is objected to because of the reference to patent application 10/415,513 on page 7, line 15. Said referenced patent application does not correspond to the information provided therewith. The Examiner believes that the referenced application should be 10/405,513.

Appropriate correction is required.

DRAWINGS

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the reference characters 36 and 37 which are not mentioned in the description.

Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the Examiner, the Applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

CLAIMS

Applicant is advised that should claims 2-9 be found allowable, claims 11-13 and 15-19 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof because all claims depend from claim 1. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Objections

Claims 4 and 13 are objected to because (1) the claim is grammatically confusing, and (2) the claim is confusing as to what the “threshold”, “updates”, and “loop” are in reference to.

Claims 11, 12, and 14 are objected to because the claims make mention of “the controller”. However, no earlier mention of a controller has been set forth in either the respective claims or claim 1 from which said claims’ depend.

35 U.S.C. § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-6, 8-16, 18, and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Remboski et al. (5,906,652).

With regards to claim 1, Remboski et al. teach a real-time control system having a fixed loop time, comprising:

an input having frequency ranging both above and below the fixed loop time; and
a method for utilizing information provided by a pulse wheel and sensed by a sensor,
comprising the steps of:

providing a rotating shaft (Fig. 1);
providing a pulse wheel (101) rigidly affixed onto the rotating shaft;
providing a sensor (103) sensing an information out of the pulse wheel, the sensed information comprising a first information and a second information (the “acceleration data-points” as disclosed by the said prior art are deemed as being the “information” as claimed by the Applicant and thus one acceleration data-point is deemed as the “first information” and another acceleration data-point is deemed as the “second information” as claimed, for example see col. 2, lines 25-29); and

when the rotating rate of the rotating shaft is greater than a predetermined value,
averaging at least two pulses wherein one of the at least two pulses being related to the first information and at least one pulse being related to the second information; thereby, the second information is used along with the first information for a more accurate representation of the information (col. 2, lines 33-36).

With regards to claim 2, Remboski et al. disclose the first information comprising information relating to the pulse wheel, which is sequentially the latest information disposed to

be processed by a controller as claimed because the latest information inputted by the sensor (103) to be processed is deemed as that “first information”.

With regards to claim 3 and likewise to claim 2, Remboski et al. disclose the second information comprising information relating to the pulse wheel, which is sequentially not the latest information disposed to be processed by a controller, but occurs prior in time to the latest information as claimed because the information inputted by the sensor (103) to be processed prior to the “latest” information is deemed as that “second information”.

With regards to claim 4, as best understood, Remboski et al. teach an on-going averaging and thus suggest “2 updates per loop” as claimed.

With regards to claim 5, Remboski et al. teach acceleration data-points which are deemed as being the “information” as claimed by the Applicant and thus one acceleration data-point is deemed as the “first information” (for example see col. 2, lines 25-29). Furthermore, the acceleration data-points are dependent upon phase angle information sensed by the sensor (103) of the pulse wheel (101), and thus the first information is phase angle information sensed by the sensor of the pulse wheel as claimed.

With regards to claim 6, Remboski et al. teach acceleration data-points which are deemed as being the “information” as claimed by the Applicant and thus one acceleration data-point is

deemed as the “second information” (for example see col. 2, lines 25-29). Furthermore, the acceleration data-points are dependent upon phase angle information sensed by the sensor (103) of the pulse wheel (101), and thus the second information is phase angle information sensed by the sensor of the pulse wheel as claimed.

With regards to claim 8, Remboski et al. teach the rotating shaft (101) being a crankshaft of an internal combustion engine (Fig. 1).

With regards to claim 9, Remboski et al. teach the claimed subject matter thereof (101).

With regards to claim 10, Remboski et al. teach a method for utilizing information provided by a pulse wheel and sensed by a sensor, comprising the steps of:

providing a rotating shaft (Fig. 1);

providing a pulse wheel (101) rigidly affixed onto the rotating shaft;

providing a sensor (103) sensing an information out of the pulse wheel, the sensed information comprising a first information and a second information (the “acceleration data-points” as disclosed by the said prior art are deemed as being the “information” as claimed by the Applicant and thus one acceleration data-point is deemed as the “first information” and another acceleration data-point is deemed as the “second information” as claimed, for example see col. 2, lines 25-29);

providing a controller (115) controlling or processing the sensed information out of the pulse wheel at a predetermined sampling rate, which is based on the rotation rate of the pulsed wheel; and

when the rotating rate of the rotating shaft is greater than a predetermined value, averaging at least two pulses wherein one of the at least two pulses being related to the first information and at least one pulse being related to the second information; thereby, the second information is used along with the first information for a more accurate representation of the information (col. 2, lines 33-36).

With regards to claim 11, Remboski et al. disclose the first information comprising information relating to the pulse wheel, which is sequentially the latest information disposed to be processed by a controller as claimed because the latest information inputted by the sensor (103) to be processed is deemed as that “first information”.

Note; claim 11 is identical to claim 2 wherein both claims depend from claim 1.

With regards to claim 12 and likewise to claim 11, Remboski et al. disclose the second information comprising information relating to the pulse wheel, which is sequentially not the latest information disposed to be processed by a controller, but occurs prior in time to the latest information as claimed because the information inputted by the sensor (103) to be processed prior to the “latest” information is deemed as that “second information”.

Note; claim 12 is identical to claim 3 wherein both claims depend from claim 1.

Art Unit: 2855

With regards to claim 13, as best understood, Remboski et al. teach an on-going averaging and thus suggest "2 updates per loop" as claimed.

Note: claim 13 is identical to claim 4 wherein both claims depend from claim 1.

With regards to claim 14, Remboski et al. teach a controller (301) that is an engine control unit as claimed.

With regard to claims 15, 16, 18, and 19, said claims are rejected for the same reasons as claims 5, 6, 8, and 9 respectively above since claims 15, 16, 18, and 19 are identical to claims 5, 6, 8, and 9 respectively.

35 U.S.C. § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Remboski et al. (5,906,652).

Art Unit: 2855

With regard to claims 7 and 17 (claim 17 is identical to claim 7), Remboski et al. teach the rotating shaft as being a crankshaft (101) in an internal combustion engine. Remboski et al. do not teach the rotating shaft relied upon as being a camshaft of an internal combustion engine.

However, it would have been obvious to one having ordinary skill in the art armed with said teaching to use a camshaft as the rotating shaft relied upon instead of the crankshaft as explicitly taught.

The motivation being that camshafts are commonly used as information gathering rotating shafts in addition to or instead of crankshafts. Evidence to this fact can be found in the Remboski et al. teaching itself. Here, Remboski et al. disclose a camshaft pulse wheel (107) for outputting information just as does the pulse wheel (101) on the crankshaft. Thus, one having ordinary skill in the art armed with said teaching would have the knowledge that a camshaft may be used as an information gathering rotating shaft just as does a crankshaft

RELEVANT ART


The Applicant's attention is directed to the enclosed "PTO-892" form for the prior art made of record and not relied upon but considered relevant to the state of the art of the Applicant's disclosure.

CONCLUSION

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Eric S. McCall whose telephone number is (571) 272-2183.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Eric S. McCall
Primary Examiner
Art Unit 2855
Dec. 09, 2004